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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,925	10/01/2003	Moh-Ching O. Chang	PO-7942/MD-03-27	8474

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BAYER MATERIAL SCIENCE LLC
100 BAYER ROAD
PITTSBURGH, PA 15205

EXAMINER	
MULLIS, JEFFREY C	

ART UNIT	PAPER NUMBER
1711	

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/676,925	CHANG ET AL.	
	Examiner	Art Unit	
	Jeffrey C. Mullis	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claims 1-10 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

The amount of methyl methacrylate embraced by the instant claims is unclear in that component "A.1" recites methyl methacrylate as a component without limitation as to quantity while component "A.2" recites methyl methacrylate being present in the copolymer at a specific level and therefore those skilled in the art when viewing a copolymer containing methyl methacrylate would not know whether or not the amount of methyl methacrylate was within the metes and bounds of the claims in that the amount of methyl methacrylate would be viewed as unlimited when viewed as component A.1 but viewed as limited to a specific quantity when methyl methacrylate was viewed as component a.2.

The terms "i" and "ii" as recited in claim 7 lack antecedent basis in claim 1.

The term "transparent" as recited in claim 8 is relative and as the specification gives no guidance as to how much transparency would be required for a material to be viewed as transparent, the term "transparent" is unclear. It is noted that the instant specification recites variable transmittance values

but it is not recited by the instant specification what transmittance value or greater an article is considered transparent.

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4 and 6-10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hanes (U.S. 6,040,382) in view of Roach (U.S. 5,879,596).

Hanes discloses a polymer blend containing three polymeric materials which are said to be "transparent" (note the Abstract in this regard) and which contains a styrene-maleic anhydride copolymer. Note Example 1 in column 10 where the styrene maleic anhydride copolymer is a copolymer having 86% styrene and 14% maleic anhydride or one in which 11% maleic anhydride was present. Note that the first copolymer A is said to be a styrene-butadiene copolymer made from multiple initiator and monomer charges at column 10 lines 21-30, a known method for

making block copolymers. Note also column 5 lines 29-35 where it is disclosed that component A is a block copolymer. Note the last complete sentence in column 6 of Hanes where it is disclosed that the styrene-maleic anhydride copolymer has a degree of polymerization of 150 to about 400, i.e. number average molecular weight may be a bit higher than 40,000. With regard to the maleic anhydride content of the styrene/maleic anhydride copolymer, note column 7 lines 15-20 where it is disclosed that the preferred range of styrene is 80-90% in such copolymers i.e. 10 to 20% although as much as 30% may be present, within the metes and bounds of the instant claims. Note column 7 lines 4-14 where it is disclosed that the styrene maleic anhydride copolymer may also contain acrylonitrile or methyl methacrylate in "a minor amount", i.e. less than 50%.

There are no specific examples in Hanes in which all of applicants' specified parameters such as weight average molecular weight and maleic anhydride content as well as acrylonitrile are present. However choice of such based o n the disclosure of the primary reference (with he exception of choice of applicants' weight average molecular weight) would have been obvious to a practitioner based entirely on the disclosure of the primary reference given that applicants' materials are disclosed to be useful in Roach and in the expectation of adequate results absent

any showing of surprising or unexpected results. With regard to applicants' weight average molecular weights, note Roach at column 5 lines 18-32 where it is disclosed that molecular weight distribution is an important variable with regard to the beneficial characteristics of macromolecular compositions such as processability and that broad molecular weight distribution in fact is beneficial with regard to processability. Therefore to arrive at applicants' weight average molecular weights based on the disclosure of the number average molecular weights in Hanes and the disclosure of Roach that weight average molecular weight over number average molecular weight is an important result effective variable with regard to processability, it would have been obvious to a practitioner having ordinary skill in the art at the time of the invention in that it requires only routine experimentation to find the optimum or workable range of a result effective variable absent any showing of surprising or unexpected results.

Claims 1-10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamaoka et al. (U.S. 5,180,535) in view of Roach and Hanes (with Hanes relied upon for claims 8 and 10), both cited above.

Yamaoka et al. disclose a composition containing styrene-conjugated diene block copolymers at a level of 50-90 weight

percent including SBS (note the Abstract and claim 3 of the patent) and also having 50% by weight or less of a styrene resin other than the block copolymer including styrene copolymers with maleic anhydride or acrylonitrile or methacrylates (note the Abstract as well as claim 5 of the patent in this regard). Note applicants' number average molecular weight range is embraced by that of patentees at the sentence bridging columns 4 and 5 with the molecular weight recited could be adapted for injection molding. Note that the Examples of patentees contain materials such as styrene-methyl methacrylate embraced by applicants' "copolymer" in line 2 of the independent claims and containing applicants' non-styrene monomer in applicants' amounts.

There are no specific examples in which both of applicants' components in combination within all the parameters of applicants' claims although the Examples of Yamaoka are very similar to that of applicants. Furthermore Yamaoka et al. do not disclose that their composition is transparent and are silent on this limitation of applicants.

With regard to applicants' number average molecular weight limitations and monomer concentrations, choice of such from the primary reference would have been obvious to a practitioner having ordinary skill in the art at the time of the invention in the expectation of adequate results absent any showing of

surprising or unexpected results.

With regard to applicants' weight average molecular weight limitation, Roach discloses that weight average molecular weights should be manipulated relative to number average molecular weight for optimum processability and as the primary reference specifically requires injection molding (a type of processing) and also discloses that molecular weights may be manipulated for optimum injection molding, it would have been obvious to a practitioner having ordinary skill in the art at the time of the invention to find the optimum or workable range of weight average molecular weight since Roach discloses that this is a result effective variable for processing absent any showing of surprising or unexpected results.

With regard to claims 8 and 10, Hanes specifically discloses that transparency is a desirable quality at column 1 lines 20-25 and discloses methods for conferring transparency and therefore it would have been obvious to a practitioner having ordinary skill in the art at the time of the invention to confer transparency on Yamaoka's composition since this is disclosed by the secondary reference to be beneficial absent any showing of surprising or unexpected results.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey

Mullis whose telephone number is (571) 272-1075. The examiner can normally be reached on Monday-Friday from 9:30 to 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck, can be reached on (571) 272-1078. The fax phone number for this Group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-0994.

J. Mullis:cdc
March 17, 2005

Jeffrey Mullis
Primary Examiner
Art Unit 1711